

## Homework

1. What are the two conditions required for total internal reflection?

Two important conditions for total internal reflection are:

1) Angle of incidence should be greater than critical angle

2) Ray should travel from denser medium to rarer medium.

2. A fish in the pond of water appears at a depth of 6 cm. What is the actual depth of the fish if the refractive index of air w.r.t water  $\frac{3}{4}$ ?

$$n = \frac{\text{Real depth}}{\text{apparent depth}}$$

$$\text{Given } n = \frac{4}{3}$$

$$\text{actual depth} = 6 \text{ cm}$$

$$\frac{4}{3} \times 6 = \text{Real depth} \quad 8 \text{ cm}$$

3. A rectangle glass slab of thickness 8cm is placed on a figure. The eye is kept exactly above this slab. If the refractive index of glass is 1.6, then by what distance the figure will appear to be raised?

$$\frac{\text{Real depth}}{\text{Apparent depth}} = \text{Refractive index}$$

$$\text{Apparent depth} = \frac{8}{1.6} = 5 \text{ cm}$$

$$\text{Normal shift} = 8 - 5 = 3 \text{ cm}$$